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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,615	10/06/2005	Hiroshi Nakashima	038788.56803US	6313

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EXAMINER

ROBINSON, ELIZABETH A

ART UNIT	PAPER NUMBER
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1773

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/552,615

Applicant(s)

NAKASHIMA ET AL.

Examiner

Elizabeth Robinson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 7-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10-6-2005.
- ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. 20070119.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1 through 6, drawn to a plate.

Group II, claims 7 through 14, drawn to a method of making the plate.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

All of the claims for Group II claim the same technical features as claim 1. However, the plate of claim 1 does not exhibit "special technical features" because it does not make a contribution over the prior art. Kraus (US 2,861,896) teaches a band filter (wavelength selecting) film on a carrier surface (Column 2, lines 36 through 39). The carrier can be a glass (transparent) substrate (Column 10, lines 6 through 8). The film is formed onto the substrate in a three-step process (Column 5, line 50 through Column 6, line 49). The first step is to vaporize at least 2 solid materials, the second step is to condense the film onto the substrate, and the third step can be a heat treatment. The third step forms a colloidal dispersion of particles of the alloy. The dispersed particles can have an elongated or flattened, string or plate form (Column 3,

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lines 63 through 70). The solid materials are taught in Column 9, lines 44 through 50 and Column 6, line 63) and include silver and a variety of other metals. A silver-zinc alloy meets the requirements set out by Kraus for materials selection (Column 7, lines 33 through 48). Kraus (Column 9, lines 33 through 38) further teaches that more than one film layer can be deposited and heat-treated so as to produce a desired optical effect.

During a telephone conversation with J. D. Evans on January 17, 2007, a provisional election was made with traverse to prosecute the invention of Group I, claims 1 through 6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7 through 14 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The units of the temperature that is multiplied by the 0.3 factor is not specified. The examiner is interpreting this to be an absolute temperature in °K.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kraus.

Regarding claim 1, as stated above Kraus teaches a transparent substrate with two layer particles of silver alloys that are dispersed by a heat treatment.

Regarding claim 2, as stated above the substrate is glass. The softening point for ordinary silica glass is about 1000°K as evidenced by Modern Physical Metallurgy and Materials Engineering (Page 345, Column 2, lines 17 through 21). The melting point of silver is about 962°C (1235°K). As evidenced by ASM Handbook, Volume 3 Phase Diagram for Silver-Zinc alloy, the melting point for a silver-zinc alloy is less than the melting point of pure silver. Multiplying the melting point of silver by 0.3 gives a value of 370°K, which is less than the softening point of the substrate.

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Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Gandon et al. (WO 02/02472). The examiner is using US 2004/0067339 as the English language equivalent of this document.

Regarding claims 1 and 5, Gandon (Paragraph 95) teaches a clear glass sheet (transparent substrate) with a layer of tin-doped indium oxide, which is also transparent, and then a layer of SiO₂ (a dielectric material) deposited on it. In Paragraph 96, Gandon further teaches that a silver layer is then magnetron sputtered onto the substrate. In Paragraph 84, Gandon teaches that this layer could include more than one type of metal and lists metals suitable for this layer, including silver, gold, and palladium. A heat treatment was then performed (Paragraph 96) to disperse the metal to form metal nodules. The examiner is interpreting the particles to have both the central portion and the outer layer to be the same material, since the claim language does not specify that the outer layer must contain only silver. Thus, prior to the subsequent etching step, the Gandon plate meets the limitations of claims 1 and 5.

Regarding claim 2, as stated above the substrate is glass. The softening point for ordinary silica glass is about 1000°K as evidenced by Modern Physical Metallurgy and Materials Engineering (Page 345, Column 2, lines 17 through 21). The melting point of silver is about 962°C (1235°K). As evidenced by ASM Handbook, Volume 3 Phase Diagram for Silver-Gold alloy and Silver-Palladium, the highest melting points for any of these alloys is 1555°C (1828°K). Multiplying this melting point by 0.3 gives a value of 548°K, which is less than the softening point of the substrate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gandon.

Gandon (Paragraph 84) teaches that the size of the metal particles are comparable to or smaller than the wavelength of visible light, which means they would be smaller than 700 nm, which overlaps the range of the extant claim. Gandon does not directly teach the proportion of substrate covered by the particles or the size of the spaces between the particles. However, Gandon (Paragraph 99) teaches the plate is then further subjected to etching, which leaves protuberances where the silver particles resided. The protuberances, and thus the particles, are taught to have been from 1 to 500 nm apart. The figure shows the protuberances and the spaces between them are of similar size. It would be obvious to one of ordinary skill in the art that with particle sizes and the spaces between them being similar in size, the proportion of surface coverage should be in the range of 0.2 to 0.8.

Claim Rejections - 35 USC § 102/103

Claims 4 and 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gandon. As stated above, Gandon teaches a plate, which is a transparent substrate with particles of silver alloys that are

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dispersed by a heat treatment and can have a particle size and occupancy ratio that meets the requirements of the instant application. Gandon does not teach the properties of light ray reflectance and near infrared shielding coefficient for the plate. However, since the particles meet the size and occupancy ratios of the instant application, the Gandon plate should inherently have the properties of light ray reflectance and near infrared shielding coefficient in the instant claims. Therefore applicant's composition is anticipated by Gandon, or in the alternative, would have been obvious to one of ordinary skill in the art based upon the prior art of Gandon since it should inherently have the same properties.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is 571-272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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CAROL CHANEY
SUPERVISORY PATENT EXAMINER